NavMed 369

UNITED STATES NAVY

MEDICAL NEWS LETTER

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Vol. 28 Friday, 19 October 1956 No. 8

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Dedication of U.S. Naval Hospital Guantanamo Bay, Cuba

On 24 September 1956, the newest U.S. Naval Hospital was dedicated. Rear Admiral B. W. Hogan MC USN, the Surgeon General, accepted the hospital from Rear Admiral G. B. H. Hall, the Commandant of the Tenth Naval District, and dedicated it in its mission of service.

In the dedication address are found many thoughts and ideals concerning the Medical Department of the U.S. Navy; among those thoughts and ideals the following extracts are quoted as indicative of the ideals and the long fruitful record of the hospital facilities that have served so well the personnel of the Navy.

"Here, again, we find—and I am most happy to remark on it—that this grand record in hospitalization in Cuba is due very largely to the magnificent examples of those medical men and women of the Navy who have here preceded us—their example of love for the Navy—of zeal to advance themselves constantly in knowledge and proficiency—to their example, which is possibly the most to their credit, of kindly consideration and encouragement for their patients. It is an anatomical fact, that the heart is halfway between the head and the hand. At the bedisde of a sick or wounded bluejacket, the brainy mind of the doctor is very important; as likewise, the hand that holds the scalpel, if deft and sensitive, is a blessing to the patient of vital and paramount value. But, above these blessings, however, is the supreme godsend of a kindly heart, the balsam of a cordial smile, the reanimating transfusion that the physician gives by his sincere and personal interest in his each and every patient. By passing from hand to hand such a torch of medical excellence, even better still in the future than in the past, there is no gainsaying this prediction, that our Naval Medical Department will one day see fully realized, if not all, at least the majority of the zealous and onward aspirations that now signalize it.

. . . . . Therefore, Admiral Hall, it is with justifiable pride and pleasure that I receive from your good hands this modern and welcomed U.S. Naval Hospital, Guantanamo Bay, Cuba, in behalf of the Bureau of Medicine and Surgery, United States Navy. I hereby dedicate it to the physical, mental, and spiritual welfare of all military personnel and their dependents. It is, furthermore, dedicated to all mankind in times of possible disaster. Its guiding light shall be our humanitarian responsibilities as well as our military mission as a link in the chain of command. Its efficiency and good reputation will be preserved by a continuing program designed for improvement in patient care."

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SPECIAL NOTICE

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Cystic Fibrosis of the Pancreas

Cystic fibrosis of the pancreas is a generalized hereditary disease of children due to dysfunction of exocrine glands. It is characterized clinically in most instances by the combination of symptoms of pancreatic insufficiency and chronic pulmonary disease. However, gradation in, or absence of, involvement of the various organs or glandular systems affected (pancreas, lungs, liver, sweat glands) is characteristic of this disorder and leads to variations in the clinical picture according to the area predominantly involved.

Cystic fibrosis of the pancreas is a relatively recently recognized condition. In 1936, Fanconi described three cases and gave the disease its name. He recognized the association in these patients of the symptoms of pancreatic deficiency with chronic pulmonary disease. This paper, however, did not attract much attention and it was not until Andersen's description, in 1938, of forty-nine cases, gathered from the autopsy files of Babies Hospital in New York, and from the world literature, that interest in the condition was aroused. In the same year, two smaller series of patients were reported by Blackfan and May in Boston, and by Harper in Australia. The pathologic lesions in the pancreas attracted the attention of the early investigators and gave the disease its name.

Prior to 1938, the diagnosis of cystic fibrosis had never been made from clinical evidence, the majority of patients died of bronchopneumonia, the basic disease having been unrecognized. In a smaller number, the predominant symptoms of malabsorption led to the suspicion of celiac disease. In recent years, with the advent of effective antibiotic agents and with greater awareness of the disease and its clinical variations, an increasingly large number of such patients is seen in pediatric centers in this country and abroad.

Fibrocystic disease of the pancreas is not a rare disorder. In the 17 years, from 1939 through May 1956, 397 cases have been seen at Babies

Hospital. Other clinics in this country and abroad have each observed several hundred cases.

Cystic fibrosis has striking racial predilections. It occurs equally in all groups of the white race and has been recognized in widely separated countries. It is rare in Negroes and has never been reported in Mongolians. Only two of the 397 patients at Babies Hospital are Negroes.

Finally, it should be stated that fibrocystic disease of the pancreas accounts, in the pediatric age group, for virtually all cases of pancreatic insufficiency, for the majority of those with chronic pulmonary disease, and for a third of children with cirrhosis of the liver and portal hypertension.

In the majority of patients, the combination of symptoms of intestinal insufficiency and chronic disease of the lung suggests the diagnosis. However, as indicated, this protean disease is characterized by variable involvement of the areas affected and patients are seen at times in whom the classical and easily recognizable clinical picture is not presented. The following groups can be differentiated.

Group I consists of patients presenting a combination of intestinal and respiratory manifestations. This category accounts for the majority of cases.

Group II consists of patients presenting pancreatic insufficiency, but no lung involvement. Such cases are not uncommon and frequently are mistakenly thought to represent idiopathic celiac disease or other conditions leading to steatorrhea in infants and children. Even in these children, the large foul stools, the excessive appetite, and the malnutrition that is present despite apparently adequate dietary intake should lead one to suspect the correct diagnosis.

Group III consists of patients with chronic disease of the lung in whom intestinal symptoms are lacking. In about 10% of cases the function of the pancreas is either normal or slightly impaired and symptoms referable to deficiency of this organ are, therefore, lacking. These patients present only chronic disease of the lung which must be differentiated from the other conditions that result in similar clinical manifestations in this age group. Of assistance in diagnosis is the fact that the majority of children with generalized obstructive emphysema, especially if they are Caucasian, have cystic fibrosis.

Group IV consists of children in whom cirrhosis of the liver with portal hypertension dominates the clinical picture. At the Babies Hospital, seven children have been seen in whom cirrhosis of the liver was clinically manifested. In two of these, cystic fibrosis was not suspected prior to admission and the symptoms of portal hypertension dominated the clinical picture. Hospitalization in both instances was for gastrointestinal bleeding. Neither had ever had respiratory symptoms previously, although these manifestations developed subsequently in both.

Group V consists of heat casualties in whom clinical manifestations of the disease were not previously noted. In two patients, acute salt depletion during hot weather necessitated admission to the hospital for emergency

treatment. Cystic fibrosis, previously not suspected, was subsequently diagnosed in both children. In one instance, pancreatic achylia was present which had given rise to only minimal symptoms; in the other, the pancreas was not involved.

All of these patients have in common the increase in sweat chloride and sodium characteristic of cystic fibrosis, so that determination of sweat electrolytes is of assistance in arriving at a diagnosis. The "sweat test" is a valuable diagnostic tool and one which is not dependent on pancreatic function.

The diagnosis of cystic fibrosis of the pancreas should then be based on the following criteria, with the understanding that some of them may be absent in the single patient:

1. Pancreatic insufficiency, present in 90% of patients, leads to steatorrhea, azotorrhea, and malnutriion. On duodenal assay, pancreatic enzymes are absent. In this laboratory, the authors have relied mainly on the determination of tryptic activity of duodenal fluid.
2. Pulmonary involvement is characterized by generalized obstructive emphysema and chronic bilateral bronchopneumonia. Respiratory involvement of varying degrees of severity is found in almost all patients at some time during the disease.
3. Abnormal sweat, showing on "sweat test" the characteristic increase in sweat chloride and sodium concentrations, leads at times to salt depletion and even to death in hot weather. Of 140 patients with fibrocystic disease who have been tested to date, only one was found to have normal sweat electrolytes.
4. A family history which reveals the presence of siblings with the same condition is of diagnostic assistance. Their absence does not rule out the disease.
5. Cirrhosis of the liver gives rise to hepatosplenomegaly and the symptoms of portal hypertension, namely, hypersplenism, gastrointestinal bleeding or ascites, or a combination of the three. A biopsy specimen of the liver reveals multilobular biliary cirrhosis and at times "concretions" are found.

Therefore, it is evident that in many instances cystic fibrosis of the pancreas must be differentiated from other conditions giving rise to steatorrhea, chronic disease of the lung, or cirrhosis of the liver with portal hypertension in the pediatric age group.

Treatment of patients with cystic fibrosis of the pancreas is directed towards correcting the effects of pancreatic deficiency by dietary measures and controlling the respiratory infection by administration of antibiotics. (di Sant'Agnese, P. A., Cystic Fibrosis of the Pancreas: Am. J. Med., XXI: 406-419, September 1956)

Pulmonary Complications of Amebiasis

Amebiasis is typically an infection of the colon by the protozoan, Endamoeba histolytica. It may be acute or chronic and it presents a varied clinical course. The most frequent symptom is diarrhea with small amounts of blood-streaked mucus, but stubborn constipation is not unusual. Often, constipation may alternate with diarrhea accompanied by tenesmus, lassitude, and a generalized vague abdominal discomfort. Due to the variety of symptoms, it may be confused with chronic cholecystitis, pancreatitis, chronic appendicitis, diverticulitis of the colon, regional ileitis, mucous colitis, and spastic colon.

Pulmonary and hepatic involvement are believed to be secondary to intestinal infestation in all cases. Pulmonary amebiasis is usually secondary to hepatic involvement. There may be contiguous spread through the diaphragm, trans-diaphragmatic lymphatic extension, or embolic spread through the circulation. About 75% of cases occur by a rupture of a liver abscess directly through the diaphragm.

The primary form of pulmonary amebiasis caused by amoebae reaching the respiratory tract by direct embolism from the intestinal tract is considered to be rare. However, pulmonary amebiasis in people without other symptoms or signs of amebiasis are on record. Extension through the diaphragm from hepatic abscess below may give rise to pleural reaction resulting in pleural effusion which appears clear and sterile. However, amoebae may be isolated in the pleural fluid. Radke reports the isolation of Endamoeba histolytica from the pleural fluid and the successful treatment with quinacrine (atabrine) and carbarsone. Fibrinous exudate may attach the lung to the diaphragm causing adhesions to develop, thus producing a fixation. Hepatic abscess may rupture into the lung, producing bronchopleural or pleurobiliary communication. Often, there may be a fanshaped area of infection extending toward the hilum on the roentgenogram. It is important to remember that there is no definite picture entirely characteristic of the disease and, therefore, that the x-ray film findings may be variable in pleuropulmonary amebiasis.

A good working classification of pleuropulmonary amebiasis into five subdivisions has been suggested by Ochsner and DeBakey: (1) hematogenous pulmonary abscess without liver involvement; (2) hematogenous pulmonary abscess and independent liver abscess; (3) pulmonary abscess extending from the liver abscess; (4) bronchopulmonary fistula with little pulmonary involvement; (5) empyema extending from a liver abscess. Sodeman suggests that to these five groups be added a sixth class, namely, pleural effusion without true pus, occurring when the amoebic infection approaches the pleura through the diaphragm before it has become infected and when the fluid is still clear.

In an analysis of 153 cases of pleuropulmonary involvement collected from the literature, Ochsner and DeBakey divided the cases according to their classification as 14.3% being hematogenous pulmonary abscess without

liver involvement; 10.4% as hematogenous pulmonary abscess and independent liver disease; 37.2% as pulmonary abscess extending from a liver abscess; 19.6% as bronchopulmonary fistulae with little pulmonary involvement; and 17.6% as empyema extending from a liver abscess. Also, in a study of 15 cases of pleuropulmonary amebiasis from Charity Hospital, Nashville, 46.6% were pulmonary abscesses extending from liver abscesses, 20% being broncho-hepatic fistulae and 33.3% being empyemas extending from a liver abscess.

Of special interest is invasion of the pericardium by the amebic process. Such a complication is usually fatal.

Among 95 cases treated by the author, there has been the surprisingly high incidence of 24 (25.2%) with hepatic amebiasis. These were diagnosed by hepatomegaly, right upper quadrant tenderness, and impaired liver function tests. Sixteen (16.8%) had been treated over prolonged periods elsewhere for spastic colon. Many such cases are diagnosed as having "nervous indigestion."

A common concept of amebiasis seems to be that dysentery is a necessary finding. In the present series, only 23 (24.2%) gave history of present or past dysentery. Many have bouts of diarrhea often considered to be "food poisoning," but also frequently experience constipation. One of the 95 cases had an amebic granuloma of the colon with an intestinal obstruction necessitating resection. A chronic purulent vaginal discharge of several months duration in one case revealed Endamoeba histolytica trophozoites.

Six cases of pulmonary amebiasis, or 6.3% among 95 patients with intestinal amebiasis, are reported. Five occurred in recognizable hepatic amebiasis; one was an amebic bronchitis without demonstrable liver involvement. The diagnoses in the six cases were substantiated by the demonstration of Endamoeba histolytica trophozoites in the sputum. A bronchobiliary communication existed in four cases.

Five were successfully treated with chlorquine diphosphate, one with emetine hydrochloride. Surgery was not necessary in any of this series. (Webster, B.H., Pulmonary Complications of Amebiasis - A Report of Six Cases: Dis. Chest, XXX: 315-325, September 1956)

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Principles of Resuscitation in the Dental Office

In discussing resuscitation as it may be practiced by the dentist, it must be remembered that because of the physical limitations imposed by the dental office, the limitation of available equipment, and the fact that in the large majority of instances, his medical training and experience are limited, the dentist will be restricted in his diagnostic and therapeutic endeavors. Although some of the more intricate resuscitative maneuvers cannot, therefore, be carried out under office conditions, the basic principles remain unchanged.

Effective resuscitation depends on two primary requirements: (1) realization that an emergency exists and that immediate remedial steps are required;

and (2) a definite plan of action formulated ahead of time so that confusion and delay in treatment are minimized.

Resuscitative therapy is accomplished in two phases: The immediate phase comprises a rapid evaluation of the patient's condition and steps to restore and maintain vital functions. This is the phase with which the dentist may have to deal in his office. The second phase of treatment consists of making an accurate diagnosis, instituting specific therapy, and preventing complications. Obviously, this phase is one which may be deferred for a reasonable period of time until the services of a medical practitioner can be obtained. Its completion requires time, and frequently, the employment of special diagnostic aids. The second phase is, therefore, not elaborated in detail in this article.

A relatively large number of situations may arise in the dental office in which resuscitation is required, but only two constitute the large majority. The first of these is syncope. Among the predisposing factors of interest to the dentist are pain, surgical instrumentation, emotional disturbance, and dehydration which may occur in hot weather. Syncope is frequently preceded by premonitory signs, such as weakness, giddiness, faintness, and profuse sweating.

Uncomplicated syncope is a relatively benign accident and is self-limiting in nature; its prevention and treatment are accomplished by relatively simple maneuvers. During the premonitory stage, the patient is instructed to lower his head between his knees. A cold wet compress to the forehead is of benefit. If consciousness has actually been lost, the patient is placed in the recumbent position, preferably with a slight head-down tilt or with legs elevated. If consciousness does not return promptly, inhalation of aromatic spirits of ammonia is indicated, as is the administration of oxygen.

Probably, the next most important condition requiring resuscitation in the dental office consists of reactions to local anesthetics. There are numerous other conditions, however, which may be the cause of such accidents. Incorrect sedation, either excessive or inadequate; the previous use of depressor agents for hypertension, or of cortisone; cardiac accidents, such as coronary thrombosis or attacks of angina pectoris; diabetic or insulin coma; an overactive carotid sinus mechanism; cerebrovascular accidents; hysteria; overdose of anesthesia; epilepsy and other types of convulsions—these are just a few which may on rare occasions cause trouble.

Many of the more serious accidents can be avoided by merely taking a thorough history from the patient. A history of frequent previous fainting episodes will put the operator on his guard against a recurrence of this phenomenon. A history of a previous reaction to local anesthetics will warn the dentist that trouble may again be in store and it will be well to elicit information from the patient as to the identity of the local anesthetic drug employed on the previous occasion. If such information is available, it will be prudent to use another local anesthetic of different chemical configuration, or better still, to avoid local anesthesia altogether.

Because of the importance of such information, a patient should always be told what drug has been used in case of a reaction so that he may be able to impart this information to any future operator. He should also be given a letter describing accurately the type of reaction which he experienced.

Inquiry should always be made of the patient to ascertain if any drugs are regularly used or have been prescribed by his physician. The type of drug used may give the dentist information as to whether the patient may suffer from diabetes, heart disease, thyroid dysfunction, and so on. In well advanced cases of rheumatoid arthritis, examination of the patient's hands will show signs of this disease and, consequently, will put the operator on his guard as to the possibility of the patient's taking cortisone. Frequently, if asked, the patient will volunteer information about any other systemic disease for which he is receiving or has undergone treatment. The operator should inquire whether the patient suffers from chest pain, swelling of ankles, shortness of breath, dizziness, or palpitation, as all of these symptoms may denote heart disease.

Although the dentist usually is not equipped to make a definite clinical diagnosis of systemic diseases, there are many signs which may indicate whether his patient is in good health. Shortness of breath, cyanosis of lips and fingernails, clubbing of fingers, may be indicative of either cardiac or pulmonary disease. If associated with enlargement of the veins of face and neck, they may mean actual or imminent cardiac decompensation. Swelling of the neck with tremor of fingers, and sweating of the palm may signify thyroid disease. Puffiness of the eyelids and dizziness may be indicative of kidney disease. Pallor, especially of the lips and other mucous membranes recalls the possibility of anemia. A flushed skin, perspiration, and glassy eyes may denote fever. The diagnosis of an impending or actual cold is obvious. The pulse should be observed for rate, filling, and regularity. Disease should be suspected if the pulse is abnormally rapid and feeble, or is irregular in either rate or filling.

In all such instances, the patient should be referred to his physician for diagnosis and necessary treatment of his disease. Dental work should be delayed until medical clearance is obtained. Even then, it may be advisable to carry out the dental procedures in a hospital rather than in the office.

Because resuscitation depends primarily on the reestablishment of an adequate oxygen transport system, means must be available in every dental office for the basic requirements to maintain circulation and respiration. The one single most useful, and universally applicable agent to deal with patients requiring resuscitation is oxygen. This implies the availability of a tank with proper regulator, a mask, and a breathing bag—all ready for instantaneous use. Furthermore, a series of airways of different sizes should be available, also an instrument to pry open the jaw and one to hold the tongue forward out of the posterior pharynx. A source of suction capable of clearing the airway from vomitus is also essential. These few inexpensive

items are all that are needed for adequate control of respiration and to deliver a sufficient amount of oxygen to the pulmonary circulation.

Even less equipment is required for support of circulation. Syringes of 2, 5, and 10 cc. capacity with needles are all that are needed, together with a few drugs.

Whatever the emergency requiring resuscitation, a number of basic steps should always be taken. The patient should be placed immediately in the horizontal position on his back, preferably by rapid adjustment of the chair. It is of advantage to tilt the patient in a slightly head-down position or to elevate the legs in order to facilitate return of blood to the heart and to increase the blood supply to the brain by means of gravity. The central nervous system is the first to suffer from oxygen lack and the position described will shunt blood to the brain at the expense of less critical organs. The patient is allowed to inhale aromatic spirits of ammonia. Oxygen is administered immediately by mask, and, if respiration is inadequate as judged by shallow respiration or if air hunger exists, as indicated by rapid effortful breathing, respiration is assisted by compressing the breathing bag synchronously with the patient's own respirations.

If no respiratory effort is being made, the mask is firmly applied to the patient's face and artificial respiration is performed by slow rhythmical compression and sudden relaxation of the bag at the rate of 16 to 20 strokes per minute. In this instance, consciousness will have been lost and care must be taken to maintain an unobstructed airway. This is best done by holding the chin forward. In this maneuver, the middle fingers are inserted behind the angles of the mandible while thumbs and index fingers secure the mask against the face.

The airway may be further improved by turning the head to one side or the other. If this fails to maintain absolutely unobstructed breathing, an artificial airway of suitable size should be inserted in such a way that the curved end of the airway comes to lie between the base of the tongue and the posterior pharyngeal wall. Too short an airway may actually increase the obstruction by pressing upon the dorsum of the tongue and forcing the base of that organ to be pressed against the pharynx.

A free airway and adequate ventilation having thus been assured, a rapid check should be made of the state of circulation. In the majority of instances where mere fainting has occurred, the patient will regain consciousness within a few minutes after being placed supine, frequently even before oxygen administration has begun. Nevertheless, oxygen administration should be instituted until the patient is fully conscious and the pulse is of good volume and slow rate. Such a patient should not be allowed to sit up for some time and then should only slowly and gradually be allowed to elevate the head until he is able to sit without recurrence of symptoms.

If a patient has ceased to breathe spontaneously and oxygen is not available, artificial respiration should be instituted. In choosing a suitable method,

it should be borne in mind that it is better to place the patient in a face-down position with the head turned to one side as this will more certainly promote a free airway without special precautions and will allow saliva and vomitus to drain away rather than be aspirated. The various available methods of artificial respiration have been thoroughly investigated and it has been found that—all else being equal—the arm-lift back-pressure, or arm-lift chest-pressure techniques will give the best tidal volume with the least exertion on the part of the operator.

Most accidents in the dental office are minor and will respond to the procedure of placing the patient into the supine horizontal position with legs elevated and the administration of oxygen. Rarely, will stimulants and vaso-pressors be required, but should be employed without hesitation if the patient fails to respond to the administration of oxygen. It must be remembered that an adequate supply of oxygen to vital organs depends on the integrity of the respiratory and circulatory systems. If a catastrophe of the magnitude of cardiac arrest does arise in the office, the chances of salvaging the patient are extremely small, yet the few maneuvers available to the dentist under such circumstances should, nevertheless, be employed.

Much difficulty can be avoided by taking the patient's history and by obtaining medical clearance in doubtful cases. Every patient who has required resuscitation should be referred to a physician's care so that the underlying condition for the accident may be evaluated and necessary precautionary treatment instituted if organic disease is present. (Sadove, M.S., Wyant, G.M., Principles of Resuscitation in the Dental Office: J. Am. Dent. Assn., 53: 168-174, August 1956)

* * * * * *

Diagnostic Problem of Histoplasmosis

Histoplasmosis is significantly common in the East Central portion of the United States, and may challenge many an astute diagnostician to discover it in one or all of its clinical variations. As a disease entity, it is primarily granulomatous in nature mimicking, particularly, tuberculosis in its pulmonary form. The etiologic agent is the fungus Histoplasma capsulatum, an organism highly invasive in the reticulo-endothelial system. Experimental and epidemiologic evidence greatly favors the respiratory tract as the portal of entry for the fungus. The respiratory tract is most often involved, although the disease may or may not cause pulmonary infiltration.

To emphasize more fully that the physician and surgeon will often be faced with the disease, histoplasmosis, whether properly diagnosed or not, its endemism is briefly considered. Histoplasmin skin sensitivity is highly prevalent among persons living in the East Central States or Lower Mississippi Basin (positive in 45 to 90%) and it must be assumed, therefore, that

infection with H. capsulatum is ever present in that area. In direct accord, the area of highest incidence of pulmonary calcifications—many of whom do not react to tuberculin—can be practically superimposed on this same area composed of the Lower Mississippi Basin States. These calcified healed pulmonary lesions and positive histoplasmin skin sensitivities result from infection with the Histoplasma fungus. Many a fever of undetermined origin in the Midwest could represent another case of undiagnosed benign histoplasmosis.

Twenty-one epidemic outbreaks of histoplasmosis involving a total of 182 persons have been described in the literature to date. The great majority of these epidemics were concentrated within the areas having a high or moderately high incidence of the disease. In practically all instances, the persons affected were engaged in a cleaning project involving agitation of long undisturbed, dry, dusty materials containing excreta, mostly avian, within restricting enclosures. Fungal isolations from soil samples collected at the point source of the epidemic have been successful in 16 of the 21 outbreaks.

The symptomatology of histoplasmosis may be insignificant to severe, very occasionally progressing to chronicity or fatal dissemination. It offers little to distinguish the disease from other febrile illnesses. Asymptomatic cases do occur, but usually the symptoms are "flu"-like. The incubation period is probably anywhere from 7 to 21 days dating from the inhalation of the fungal spores. There are fever, chills, headache, backache, malaise, anorexia, and usually a cough with or without sputum. Physical examination of the chest is remarkable for the paucity of findings even when there is widespread pulmonary infiltration. With an acute attack, the symptoms usually abate in a few weeks or less. Fatigability may be more lasting. The pulmonary lesions go on to heal, sometimes by resolution over weeks or months or by calcification over many years. Patients whose disease progresses to chronicity with cavitation may continue to have cough productive of sputum, usually positive for the fungal agent. These patients may remain satisfactorily in balance with their disease for many years. Others may progressively go downhill. Acute dissemination of the organism throughout the reticuloendothelial system inevitably ends in death.

Because the clinical spectrum of histoplasmosis ranges from inapparent infection to a fatally fulminating disease, familiarity with its variable patterns can aid in promoting its consideration as a plausible diagnosis. Both in symptoms and by roentgenogram, histoplasmosis is a mimic of many diseases. The great variation, particularly in the pulmonary lesions of this fungal disease, tends to emphasize the need for careful differential diagnosis. The differentiation of tuberculosis and histoplasmosis presents the greatest challenge. Other fungal infections, lung metastases, neoplasms, lymphoma, sarcoidosis, and virus pneumonia are but a few additional differential diagnoses to be entertained.

Once suspicions are aroused from the history, physical and roentgenographic findings, proof rests in pursuing the following diagnostic procedures:

1. Culture
   - Direct plating
   - Mouse passage

2. Serologic Tests
   - Complement fixation
   - Precipitin

Serologic Tests (continued)
- Collodion agglutination

3. Skin Test

4. Examination of Tissue
   - Biopsy
   - Autopsy

Isolation of H. capsulatum by direct culture onto suitable media or by means of mouse passage remains the only definitive proof of the disease. Sputum, gastric washings, bronchial secretions, blood, bone marrow, exudates, and biopsy materials could all be subjected to culture.

The histoplasmin skin test has the same significance as the tuberculin skin test. It implies either an old exposure or active disease, but will not distinguish between the two possibilities. A conversion from a negative to a positive reaction during an acute febrile illness has great diagnostic importance. If the skin test remains negative, the diagnosis is quite untenable except in debilitating disease. Explicitly, it can be said that cross reactivity never exists between tuberculin and histoplasmin as skin-test antigens. (Procknow, J.J., The Diagnostic Problem of Histoplasmosis: Postgrad Med., 20: 206-217, September 1956)

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Dyclonine - A New Local Anesthetic Agent

Endoscopic examination of the respiratory and upper gastrointestinal tracts is usually carried out under topical anesthesia. Surgeons and anesthesiologists have the general impression that these procedures are more safely done this way than under general anesthesia. Topical anesthesia is not entirely free from ill effects, however, which is evident from numerous reports in the literature. Reactions have been attributed to the local effect of the drug, such as urticaria, dermatitis, eczematoid lesions, and edema. Systemic reactions, consisting of central nervous system stimulation and convulsions or cardiovascular depression and acute collapse, have also been frequently documented. Most anesthesiologists are familiar with several severe reactions that have not been reported in the literature.

There is now general agreement that the systemic reactions to local anesthetics are due to the quantity and rapidity of absorption rather than to any degree of hypersensitivity to the drug. Few physicians appreciate the rapidity with which absorption of these drugs may occur, and fewer realize the difference in rate of absorption of the different drugs from various sites.

A new chemical compound having local anesthetic properties was recently brought to the authors' attention. This drug has the chemical name,

4-n-butoxy-B-(1-piperidyl) propiophenone hydrochloride and the generic name, "dyclonine." It differs chemically from any of the local anesthetics in use today. The evaluation of dyclonine was performed by three different techniques:

Topical Anesthesia of the Mucous Membranes of the Mouth and Pharynx. Fifteen healthy volunteers were used for this study. The subject was given 10 cc. of 1% dyclonine to hold in his mouth and gargle for 1 minute. He was then asked to check for onset, intensity, and duration of anesthesia.

Topical Anesthesia of the Larynx. Twenty-five unselected patients who were to receive inhalation anesthesia were utilized for this study. Patients were maintained in first plane cyclopropane anesthesia and evaluation of laryngeal activity was carried out before and following topical anesthetization of the larynx with 4 cc. of 1% dyclonine.

Topical Anesthesia of the Pharynx, Larynx, and Trachea for Endotracheal Intubation. Seventy-five unselected patients receiving general anesthesia were utilized for this study. Ten conscious patients undergoing either bronchoscopy or esophagoscopy were included in this series. The anesthetic agent or technique was not restricted in this group of patients except as to the depth of anesthesia, first plane in all cases, and no relaxant drug was used.

The results of this study were very gratifying. Anesthesia of the larynx and trachea was good to excellent in all cases, and endotracheal intubation was performed with ease in the majority of cases. Purposeful repeated sprayings of the larynx and trachea were carried out in a number of patients, using a total of 20 cc. of the 1% dyclonine, to determine the safety of large amounts of the anesthetic. Again, there was no effect upon the blood pressure and heart rate, and no evidence of local reactions was seen. Dyclonine gave very satisfactory anesthesia for bronchoscopy and esophagoscopy in the conscious patient.

A topical anesthetic which produces good anesthesia and which has no local or systemic toxicity would be very desirable. Many excellent topical anesthetics are available, but most of them have one or more undesirable properties. The rather small safe dosage of several of these makes their use either technically difficult, because of the necessary limitation in volume, or dangerous because of the rapid absorption that occurs from the tracheobronchial tree. Several produce satisfactory anesthesia and are reasonably safe, but do not give adequate duration of anesthesia. A 1% solution of dyclonine has been found to produce good topical anesthesia of about 20 to 25 minutes' duration. This drug has also been given intravenously to man in doses of 200 to 500 mg. without major toxic effects. If the lower dosage is accepted as the maximum to be used, this would allow 20 cc. of the 1% solution to be used for topical anesthesia. This volume should be ample for any endoscopic procedure. Assuming that absorption from the tracheobronchial tree approached that of intravenous injection, one would still not expect to see any major toxic effects. The authors' studies with this drug suggest that it produces no toxic reactions

in the dose ranges (4-20 cc. of a 1% solution) used. The absence of any central nervous system stimulation or cardiovascular depression was a constant observation. (Harris, L. C. Jr., Parry J. C., Greifenstein, F. E., Dyclonine - A New Local Anesthetic Agent: Clinical Evaluation: Anesthesiology, 17: 648-651, September - October 1956)

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Food Poisoning

During the spring and summer of 1954, four incidents of illness following the consumption of fish were reported to the Broward County Health Department in Fort Lauderdale, Fla. The clinical manifestations of the illness and the results of laboratory and epidemiological investigations indicated that it was fish flesh poisoning, or ichthyosarcotoxism, resulting from ingestion of the great barracuda, Syphraena barracuda.

Icthyosarcotoxism is the technical term for intoxication resulting from the ingestion of the flesh of poisonous fish.

One of the first symptoms to develop is a tingling about the lips and tongue. The tingling soon spreads to the hands and feet and gradually develops into numbness. These symptoms may appear at any time within a period of 30 hours after ingestion of the fish. Gastrointestinal symptoms are said to be reported by about 75% of the victims. Some persons state that their hands and feet are without feeling, whereas others report that their hands and feet hurt when placed in water. Persons with very severe cases generally suffer impairment of movement and sometimes are unable to walk or stand.

One of the most outstanding symptoms is the generalized sensory disturbance in which temperature sensations are reversed; that is, hot objects seem cold to the touch and cold objects seem hot. This particular disturbance has been reported from many widely scattered areas of the world for more than 175 years.

Recovery from severe attacks of fish poisoning is usually very gradual. Symptoms of weakness sometimes persist for months after specific symptoms have disappeared. An attack does not impart immunity and there is no known specific antidote or antitoxin.

Clinical reports indicate that the ichthyosarcotoxins from many fish species are powerful neurotoxins. The symptoms are similar to those produced by such compounds as aconitine, muscarine, and curare.

There are four major types of ichthyosarcotoxism: ciguatera; Tetraodon, or puffer, poisoning; scombroid poisoning; and Gymnothorax poisoning. All of these have many characteristics in common, but they differ as to the predominance of certain types of symptoms.

Ciguatera, or Caribbean type fish poisoning, has been known for a number of centuries in the countries bordering the subtropical and tropical

waters of the Caribbean Sea, the Atlantic Ocean, and the Pacific Ocean. Although numerous species of fish produce this type of poisoning, one of the common causative species is the Sphyraena barracuda.

Ciguatera is considered the least virulent form of fish poisoning. The mortality rate has been estimated to be 2 or 3%. Complete recovery from the weakness and myalgia can be a matter of weeks or months. Records indicate that not all persons who eat poisonous fish become ill, but one attack of ciguatera does not impart immunity to subsequent attacks.

Besides the usual symptoms of fish poisoning, ciguatera has the following characteristics:

1. The onset occurs from 1 to 10 hours after ingestion of the fish.
2. There is a distinct metallic taste in the mouth.
3. There is a tingling sensation and itchiness which may last for days.
4. Malaise, chills, fever, prostration, profuse sweating, generalized motor incoordination, muscular weakness, and joint aches are common.
5. Cramps may occur in the extremities.

Many theories regarding the cause of fish poisoning have evolved over the centuries. Some of these theories are: food-chain theory; copper contaminated waters; size, sex, and development; bacterial contamination; and endogenous theory.

None of these theories seem to explain why the consumption of barracuda, caught off a particular part of the east coast of Florida in the spring and summer of 1954, resulted in illness. Hundreds of the same species of fish were caught in the same waters during the same period and were eaten without harmful effects. Barracuda from these waters have been eaten in the years before and since, yet no other illnesses of a similar nature are on record.

It is earnestly hoped that research on fish flesh poisoning will be intensified so that outbreaks such as those described can be prevented. Basic knowledge is needed regarding the factors that cause the flesh of sometimes edible fish to become poisonous, the chemical and pharmacological properties of the toxins, and means by which poisonous fish can be recognized.
(Paetro, S., Food Poisoning Caused by the Great Barracuda: Pub. Health Rep., 71: 933-937, September 1956)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

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Course in Clinical Use of Radioactive Isotopes

An eighteen weeks' course of instruction in the Clinical Use of Radioactive Isotopes will be given at the U.S. Naval Medical School, Bethesda, Md., commencing 21 January 1957 and ending 31 May 1957.

Officers considered eligible for attendance at the course are those who have completed a minimum of eighteen months of formal residency training, without regard to specialty. Those attending must have clearance for access to classified material, up to and including Secret, This course meets the Atomic Energy Commission requirements for qualification in the use of isotopes.

Eligible and interested medical officer personnel should forward requests to the Chief of the Bureau of Medicine and Surgery via official channels. Requests for attendance at the January course must be received in Bureau of Medicine and Surgery prior to 1 November 1956. Travel and per diem orders will be provided. (ProfDiv, BuMed)

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Common Errors Made on NavMed-F

(Basic instruction is BuMedInst 6310.3)

Change 5 to BuMedInst 6310.3 relieved medical officers of verifying and signing the NavMed-F cards submitted by naval activities. To assist the individual now assigned the responsibility of such verification and signature, a checklist of the most common errors committed on NavMed-F is furnished below. It is requested that medical officers call the attention of their personnel to this list.

Common Errors

1. Some activities are still submitting data on the old NavMed-F cards. Check your stock to insure your use of NavMed-F (Rev. 1-54).
2. Many activities send the NavMed-F (Transfer) card to the Bureau of Medicine and Surgery instead of to the activity to which the patient was transferred. Refer to subparagraph 1c (2), page 6, of basic instruction.
3. A typing error occurs quite often in block 4 (Race). The typist has struck an "M" for male in block 3 (Sex) and strikes "M" again in block 4. Refer to subparagraph 9g, block 4, page 22. In cases where the patient's race is Malayan or Mongolian, type in the abbreviations "Mal." or "Mon."
4. Length of Service in block 5 should be the total service at the time of admission. Many activities still put years and months (1 year 7 months) instead of just years as requested (2 years). Fraction of a year (1/2 or

more) to be counted as a full year. For personnel with less than 1-year active service, record the actual number of months served. Refer to subparagraph 9g, block 5, page 24.

5. One of the most frequent errors is committed in block 7 (Rate, Rank, Corps, Regular or Reserve). A large number of NavMed-F cards are received each month without the branch of service (USN, USNR, USMC, USMCR) being given in block 7. Refer to subparagraph 9g, block 7, page 24

6. Many NavMed-F cards are received with block 8 (Surgery) left blank. ("Yes" or "No" should be entered.) In others, when "Yes" is placed in block 8, the title and number of the operation is not given in block 14 as requested. Refer to subparagraph 9g, block 8, page 24, and 9g, block 14, page 25.

7. Oversea activities and ships cause extra work when they fail to give their FPO address in blocks 9 and 10. Refer to subparagraph 9g, blocks 9 and 10, page 24.

8. Although paragraph 4, page 2, of the basic instruction gives specific instructions that "Observation" titles (7930) and (7932) shall not be used as admission diagnoses, many NavMed-F cards have to be returned for correction because activities have continued to make this error.

9. Large numbers of NavMed-F cards are returned by the Bureau because activities fail to make a notation (in block 14) after each established diagnosis as to whether or not the condition existed prior to entry into the naval service (EPTE or DNEPTE). Refer to paragraph 13, page 29d.

10. Paragraph 12, page 29d, of basic instruction states that a patient shall not be discharged from the sicklist with the title "Diagnosis Undetermined" (7955) except in (1) cases of desertion before a diagnosis is established or (2) cases of persons on training duty admitted to the sicklist and whose training duty is terminated prior to establishment of a diagnosis. In both cases an explanatory note shall be made in block 14.

11. Failure to report or incomplete reporting of the circumstances of occurrence for injuries and poisonings in block 14 cause many NavMed-F cards to be returned for completion. It is believed that if the persons preparing the NavMed-F cards would refresh their minds in this connection by reading paragraph 16 on pages 30-39 a better report record could be maintained by the activity. Incomplete circumstances of occurrence in vehicle accidents cause the greatest number of NavMed-F cards to be returned in this group. By answering the following questions in your statement you will, in most cases, have given a complete picture.

a. What kind of vehicles were involved (military jeep, military ambulance, civilian car, civilian bus, et cetera)?

b. How did the accident happen? Examples:

(1) Patient was driver of tractor which was struck by civilian bus.

(2) Patient was riding a bicycle and was struck by military halftrack.

(3) Patient was a passenger on a civilian bus which struck an animal on the roadway and turned over.

Condensed Ready Reference Error Checklist

In the future, if the person who prepares the NavMed-F card and the person who checks the NavMed-F card will use the checklist given below, the number of NavMed-F cards returned by the Bureau for correction will be greatly reduced and the extra work by the activities in correcting and returning the cards will be eliminated.

1. Are you using the new NavMed-F card (Rev. 1-54)?
2. Are you sending the NavMed-F Transfer card to the correct addressee?
3. Have you checked block 4 for typographical error?
4. In block 5, Length of Service, have you given months only in those cases where the patient has less than 1 year active service?
5. In block 7, have you followed the patient's rate or rank with "USN, USNR, USMC, or USMCR?"
6. In block 8, Surgery, have you placed "Yes" or "No" in this block? If "Yes," have you checked to see if the operation title and number is given in block 14?
7. If you are on a ship or overseas, have you given your FPO address in blocks 9 and 10?
8. Have you erroenously used an "Observation" title as the admission diagnosis?
9. Have you stated if the condition existed prior to entry into the naval service?
10. Have you erroneously used "Diagnosis Undetermined" (7955) as a disposition diagnosis? If you have used "DU" for one of the two excepted conditions, have you made a note in block 14 stating your reason?
11. Does the circumstance of occurrence give a complete picture of how the injury or poisoning occurred?

(LT J. P. Kirsch MSC USN, StatDiv, BuMed)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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From the Note Book

1. The TV program, Medical Horizons, sponsored by the CIBA Pharmaceutical Products, Inc., of Summit, New Jersey, featured deep sea diving, underwater rescue work, and training procedures conducted by the Navy's Submarine Force. The live TV broadcast was made at the U.S. Naval Submarine Base, New London. Rear Admiral B. W. Hogan, Surgeon General of the Navy, and Rear Admiral F. T. Watkins, ComSubLant, appeared on the program. Captain H. J. Alvis MC USN, Director, Submarine Medicine Division, Bureau of Medicine and Surgery, was Technical Advisor to the show. (TIO, BuMed)

2. Rear Admiral I. L. V. Norman MC USN represented the Surgeon General at the Ninth Naval District Annual Military Medical-Dental Symposium held at the U.S.N.H., Great Lakes, Ill. The three-day symposium featured leading medical authorities of the Armed Forces and the United States who spoke, presented papers, and participated in seminars, panel and round table discussions. New and interesting scientific, medical, and dental exhibits, displays, and motion pictures were also available during the entire meeting. (TIO, BuMed)

3. Rear Admiral H. P. Riebe DC USN represented the Surgeon General and the Bureau of Medicine and Surgery at the 97th Annual Session of the American Dental Association meetings held in Atlantic City. The meetings featured many interesting technical and professional papers, exhibits, panel discussions, seminars and motion pictures. (TIO, BuMed)

4. Captain B. F. Avery MC USN represented the Navy Medical Department and the Department of Defense at the Tenth General Assembly of the World Medical Association held at Havana, Cuba. Captain Avery also participated in the Medical Editors' Meeting attended by medical journal editors from various nations throughout the world. (TIO, BuMed)

5. Captain R. A. Phillips MC USN was recently elected as Chairman of the Board of Governors of the Friends of China Club, Taipei, Taiwan, consisting of 800 members, two-thirds of whom are Chinese. The other third are of foreign membership, the majority being American. Captain Phillips was also appointed Associate Member of the Minister of the Interior's Committee for the Coordination of Foreign Aid in Medicine and Health. (TIO, BuMed)

6. The world's first operational space suit was unveiled recently at North Island Naval Air Station in San Diego, Calif. Designated the "Omni Environmental Suit," this garment realizes the efforts and research of many years

in developing a full pressure suit capable of affording the pilot complete protection at any altitude. (TIO, BuMed)

7. Nine Ensigns 1995, Dental, of the Medical College of Virginia, Richmond, Va., completed a course in Personnel Damage Control during the month of August at the Naval Training Center, Bainbridge, Md. (TIO, BuMed)

8. The Armed Forces Medical Library, on 1 October 1956, was transferred to the Public Health Service, Department of Health, Education, and Welfare. The Library will form the nucleus of the National Library. (PHS, HEW)

9. Public Health Service scientists have produced fatty deposits characteristic of early atherosclerosis in the hearts and arteries of rats, a species naturally immune to this disease. This has been done by injecting them with human lipoproteins, the large fat-protein molecules in which form the body transports fats through the blood. (PHS, HEW)

10. The fifteen British Medical periodicals, formerly distributed in America through Grune and Stratton, Inc., are now distributed by Medical Market Research, Inc., subsidiary of J. B. Lippincott Company, East Washington Square, Philadelphia 5, Pa. (Code 25, BuMed)

11. A classification of diabetes, based on a study of 172 patients is presented. An attempt is made to separate persons with stable diabetes from those with brittle diabetes and to express diabetic control in these patients. (Am. J. Med., September 1956; J. G. Alivisatos, M. D., E. P. McCullagh, M. D.)

12. The medical therapy of occlusive arterial disease is discussed in Dis. Chest, September 1956; W. F. Kvale, M. D.

13. The author presents clinical, histopathologic, experimental, and therapeutic evidence to support the concept that chronic discoid lupus erythematosus and systemic lupus erythematosus are merely variants of a single disease. (Postgrad. Med., September 1956; M. F. Allende, M. D.)

14. A brief history of the development of operative treatment for congenital anomalies of the esophagus over the past 50 years is presented in J. Thoracic Surg., September 1956; G. H. Humphreys, M. D.

15. This article summarizes 24 cases of measles encephalitis encountered in a 10-year period. Newer concepts of more definitive therapy with steroid hormones and corticotropin are also summarized. (Diseases of Children, September 1956; B. E. Swanson, M. D.)

BUMED INSTRUCTION 1532.1A 21 September 1956

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: Aviation selection tests; information concerning

This instruction provides information relative to the administration of the naval aviation selection test battery. BuMed Instruction 1532.1 is canceled.

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BUMED NOTICE 5511 25 September 1956

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Declassification of malaria, malaria epidemic control, and epidemiology unit reports

Ref: (a) OpNavInst 5510.1A, Subj: U.S. Navy Security Manual for Classified Matter

This notice declassifies malaria, malaria epidemic control, and epidemiology unit reports.

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BUMED INSTRUCTION 6600.1 SUP-1 26 September 1956

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Dental Personnel Regularly Assigned

Subj: Dental Service Report (DD Form 477-1), Equipment and Facilities Supplement; submission of

Ref: (a) Art. 23-2, ManMed

This instruction reduces the number of activities required to prepare the subject report and its frequency of submission, and standardizes reporting procedures for the mobile dental units. Reference (a) will be modified in a future change. BuMed Instruction 6600.1, as modified, will be incorporated into a future reprint of Chapter 6, Manual of the Medical Department.

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DENTAL SECTION

Dental Officers Attend Annual Session of ADA

Rear Admiral R. W. Malone DC USN, Assistant Chief for Dentistry and Chief, Dental Division, and three other Dental officers from the Dental Division attended the 1956 Session of the American Dental Association at Atlantic City, 1-4 October 1956. Captain B. H. Faubion DC USN, Deputy Chief of the Dental Division, was the U.S. Navy Delegate to the House of Delegates; Captain A. R. Frechette DC USN, Head, Professional Branch, and Captain C. M. Wheeler DC USNR, Head, Dental Reserve Branch, participated in meetings concerned with their particular areas of Dental Division responsibility and interest.

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Seminar for CO's of Reserve Dental Companies

A Seminar for Commanding Officers of Naval Reserve Dental Companies will be held in Washington, D. C., for one week, October 29 to November 2, 1956.

The seminar is designed to provide indoctrination and orientation in the organization, administration, and operation of the Naval Dental Service from the Bureau level, and to acquaint the trainee with the current concepts and trends affecting the Naval Reserve Dental Program. A series of conferences will be held between the trainees and interested personnel in the Bureau of Medicine and Surgery with a view toward an improved Reserve Dental Program through exchange of ideas and recommendations.

In 1955, this seminar was considered very successful in accomplishing its purpose. Key personnel in the Reserve Program were able to carry back to their companies the latest information from Washington.

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Military Training Course at Naval Dental School

A two-weeks' course in Dental Military Training began on 15 October 1956 at the Naval Dental School, National Naval Medical Center, Bethesda, Md.

The first week was devoted to subjects concerning the Naval Reserve Program, the functions of Dental Departments, and a review of recent advances in military dentistry including Personnel Damage Control. The second week will be devoted primarily to the Medical Aspects of Special Weapons and Radioactive Isotope, with emphasis on basic concepts of Atomic Medicine.

Commandants of the First, Third, Fourth, Fifth, Sixth, Eighth, and Ninth Naval Districts were assigned a quota for this course. Inactive Reserve Dental officers who desired to attend this course should have submitted their request for fourteen days' training duty to their commandant.

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MDU # 8 Receives Letter of Appreciation

A letter from the Officer-in-Charge, Marine Corps Recruiting Station, Cleveland, Ohio, recently received in the Dental Division, Bureau of Medicine and Surgery is quoted:

> "I should like to express my appreciation for the services rendered to personnel of Marine Corps Recruiting Station, Cleveland, Ohio, by LTJG Enright and his crew. Their courtesy, efficiency, and all around helpfulness was exceptional, bringing favorable comments from all of our station personnel.
>
> (s) J. W. Beckett, Jr."

LTJG C. M. Enright DC USNR, is assigned as Dental Officer of Mobile Dental Unit # 8.

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Operation Build-Up

The following Dental officers have recently been appointed in the Regular Navy Dental Corps:

CDR Charles W. Folkers
U.S. Naval Reserve Air Facility
Birmingham, Ala.

CDR Edwin Montrose Sherwood
U.S. Naval Amphibious Base
Coronado, San Diego, Calif.

LT Robert A. Gaston
Aircraft, FMF, Pacific
MCAS, El Toro, Calif.

LT James Wesley Hays
NAVAL Dental School
NNMC, Bethesda, Md.

LT Virgil A. Pinkley
U.S. NAS, Navy No. 14
F.P.O. San Francisco, Calif.

Dr. Joseph Edward Deitch
Univ. of Pennsylvania, School of
Dentistry, Philadelphia, Pa.

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Captain Niiranen Elected to Fellowship in AAAS

Captain J. V. Niiranen DC USN, presently on duty at the Naval Dental School, NNMC, Bethesda, Md., was recently elected to fellowship in the American Association for the Advancement of Science.

Captain Niiranen is Head of the Training Aids Department at the Naval Dental School.

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Dental Seminar at NAS, Pensacola

The first of a series of monthly seminars for Naval Dental officers in the greater Pensacola area was held at the U.S. Naval Air Station, Pensacola, Fla., 17 September 1956. Members of the Pensacola Dental Society were invited to attend. CDR Wayne A. Nelson DC USN, the Oral Surgeon of the Dental Department, Naval Air Station, Pensacola, delivered a lecture on the subject Aviation Dentistry. Dr. Nelson is the lecturer on Aviation Dentistry for the School of Aviation Medicine.

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MEDICAL RESERVE SECTION

Class "A" School Training for Hospital Corpsmen

To provide a more comprehensive and progressive type of training for inactive Reserve Hospital Corpsmen, a Class "A" School Training Program of 12 weeks' duration has been established at the Hospital Corps Schools at Bainbridge, Md.; Naval Hospital, Great Lakes, Ill.; and Naval Hospital, San Diego 34, Calif.

Classes convene weekly at Bainbridge, Md., bi-weekly at Great Lakes, Ill., and San Diego, Calif. Trainees may be ordered to report to these

activities on any Monday morning. Candidates for this training are limited to personnel in pay grade E-2 and E-3. E-2 personnel must be enlisted under the Reserve Forces Act of 1955 and in pay grade a minimum of 6 months. The following requirements must be met. The candidate must:

1. Be enrolled in good standing in a pay or non-pay program of the Naval Reserve.
2. Have achieved the minimum Basic Battery Test Score required for admission to a Class "A" School to which ordered. Hospitalmen must have achieved the minimum Basic Battery Test Score (Combined GCT/ARI) of 100. No waivers will be granted for personnel whose scores do not meet the minimum requirements.
3. Have at least 3 years remaining on present enlistment; or must agree to extend enlistment for the required period.
4. Not have been enrolled in, or completed, a Class "A" School while on active or inactive duty.

No specific quotas are being assigned. Quotas will be controlled by the Chief of Naval Personnel and will be assigned upon request from Commandants. Orders to trainees selected will be for the duration of the course to which ordered.

Hospital Corpsmen who have satisfactorily completed the accelerated Class "A" School Training Program may be examined for, and advanced to, pay grade E-4 when they have completed a minimum of 9 months in pay grade E-3, provided their drill attendance meets the required minimum.

District Medical officers are requested to give this program the widest possible dissemination and to encourage Reserve Hospital Corpsmen who are eligible to take advantage of this opportunity for professional improvement and ultimate advancement. (Reference BuPersInst. 1571.13)

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Package Curriculum for Reserve Medical Companies

Curriculum entitled, Preventive Medicine for Fiscal Year 1957, has been prepared and is being distributed to commanding officers of Naval Reserve Medical Companies throughout the United States.

Containing material for fourteen drill periods which may be utilized for a greater number of drills if necessary, this curriculum is composed of all necessary study and reference texts assembled in separate envelopes so that participating members and guest speakers may prepare lecture subjects well in advance of scheduled drills. Topics for presentation follow:

Drills	Subjects
1	General Provisions Concerning Preventive Medicine Manual of the Medical Department, Chapter 22

Drills	Subjects (continued)
2.....	Medical Biostatistics
3	Immunization Procedures in the Armed Forces
4	Epidemiology
5	Communicable Diseases
6	Medical Entomology
7	Environmental Sanitation in the Armed Forces
8	Venereal Disease Control Program of the U.S. Navy
9	Clinical Tuberculosis and the Navy Control Program
10	Field and Emergency Sanitation
11	Chapter 23, Manual of the Medical Department: Reports, Forms, and Records, Part I
12	Chapter 23, Manual of the Medical Department (continued): Reports, Forms, and Records, Part II
13	Role of the Medical Officer in Motor Vehicle Accident Programs
14	Alcoholism

Lecture subjects need not be presented in the order listed and reference material may be augmented as desired. Variety in the unit's training program is afforded through an occasional drill planned and conducted with a program of local choice.

"Package" curriculum for fiscal year 1958 is being prepared and will be distributed at a later date.

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AVIATION MEDICINE SECTION

Three Jet Trainer Accidents

"A little learning is a dangerous thing;
Drink deep, or taste not the Pierian spring."

The three accidents briefed below occurred in TV aircraft. In the first case, the pilot had 4100 hours total flight time and the dual pilot 4600 hours, but their time in the TV was 60 hours and 25 hours respectively. In the second case, the pilot had a total of 3973 flying hours of which 30 hours were in the TV. In the third case, the pilot had a total of 2175 flying hours with 60 hours in the TV.

The flight surgeons' recommendations in the first two cases indicate that there is general disregard for the training requirements of OpNav Instruction 3740.3A. TV's may be training aircraft, but they are also high performance aircraft requiring a thorough knowledge on the part of the pilot.

The third case is of interest from the standpoint of possible carbon monoxide contamination in the TV.

Case No. 1. Neither pilot has ever had formal training . . . . .

While in downwind leg of pattern for landing, the aircraft pitched nose down when the throttle was retarded and the gear lowered. After one erratic pass at the runway without much airleron control and with both pilots maintaining strong back pressure on the stick to keep the nose up, the decision was made to climb out to altitude and eject . . . At about 5000 feet, the tip tanks were jettisoned, but a normal attempt to jettison the canopy was unsuccessful. The canopy was finally blown by unlocking the canopy and actuating the canopy motor three times before it was cracked sufficiently to permit the windblast to tear it off . . . . .

Shortly after the co-pilot ejected, the pilot started his procedure. His attempts to activate the firing were without success. After arming the seat, repeated efforts and squeezes with both hands on the trigger failed to fire the seat. The aircraft still had its tendency to tuck under each time back pressure on the stick was released. The pilot then decided to bail out. He attempted to stand up in the stirrups in order to dive out, when the aircraft pitched forward throwing him up and to the left out of the aircraft which still had 100% power. He missed the tail surfaces and experienced tumbling after leaving the aircraft . . . . .

Neither pilot has ever had formal training (OpNav Instruction 3740.3A) or lectures in ejection seat use nor any recent instruction in bailout procedures. Both had read considerably in such magazines as Approach and Flying Safety, articles about these two methods of escape and have received checkouts by other squadron personnel. The pilot had a low pressure run in the low pressure chamber about two years ago, but the co-pilot has not had this training for quite a few years.

The fact that both men escaped is a tribute to their refusal to panic at a time of emergency, and their ability to remember what they had read about survival procedures.

Case No. 2. . . . . .the ejection seat was not armed on orders of the pilot.

Commander Blank filed IFR on 24 August 1956 1000' on top for Kirkland Air Force Base. Rain storms were expected over Arizona. On the mat at the end of the runway, a 100% turn up could not be effected and the pilot returned to the line. After adjustment, the airplane was topped off with forty-six gallons of fuel. The pilot did not have adequate cruise control data available. He wore a back-pack type parachute, and the ejection seat was not armed on orders of the pilot. Commander Blank encountered heavy

turbulence and rain over Arizona at 33,000 feet and he requested clearance to 25,000 feet. Here again, turbulence was rather marked and he finally was cleared below at 14,000 feet. By this time, his remaining fuel was 138 gallons and he requested by radio the nearest field where he could land. He was told that Gallup, New Mexico, had 6000-foot runways and he proceeded there. He was later informed that the runway was 5000 feet and the elevation was 6420 feet. At this time, he had insufficient fuel to go elsewhere. The temperature was 15 degrees over standard (85 degrees) and the elevation was 450 feet higher than standard. With these conditions and a 5000-foot runway, the pilot elected to land wheels up alongside the runway. He made a successful wheels up landing after alerting civilian crash equipment. Damage to the aircraft was "C". The pilot was not injured.

Recommendations

In any aircraft that has an ejection seat, the seat should be armed before flight. It is dangerous and foolhardy for a pilot to order the pin left in place when he is planning a jet flight . . . . .

OpNav Instruction 3740.3A requires pilots flying high performance, high altitude aircraft to undergo low pressure indoctrination every two years. Commander Blank had not had such a refresher course in five years. Pilots borrowing aircraft from other facilities should be required to present a flight clearance chit to the operations officer concerned.

Case No. 3. Pilot became ill shortly after take-off from Dobbins AFB. Illness proceeded to point where he lost rational and conscious control over his faculties. Unknown to him, he successfully ejected and parachuted safely to the ground and came to rest in a pine tree . . . . .

Pilot states that flight from USNAS, Jacksonville, Fla., to Dobbins Air Force Base was normal in all respects. Upon arrival at Dobbins, he noted thirst and a craving for a coke. He drank a considerable amount of water and two Coca Colas . . . He had to obtain his weather information from CAA by telephone and states he was unable to follow the person giving the report and write it down at the same time, so he was assisted by an Air Force man in recording weather information . . . Upon arriving at his aircraft, he secured himself in the cockpit, placed on his helmet and oxygen mask, and started his engine. He then closed the canopy and began his cockpit check-off. Since the flight back would be during the hours of night flying, he looked for his navigation light switch. Upon locating same, he turned it on, but his lights failed to burn. With much searching, he found the circuit breaker out and pressed it in. He depressed the breaker again, opened the canopy, removed his mask and called to a line crewman to check the operation of his navigation lights.

When given an "up," he replaced his mask, closed his canopy, checked his flashlight and completed his cockpit check-off, including setting oxygen regulator on 100%. He did not use a regular check-off list. He referred to the list printed on the instrument panel. He states that he made a rather quick check-off.

However, 20 minutes passed from the time he got into his aircraft until he took off. He reasons that this delay was partly due to being unfamiliar with the TV-2 aircraft, since he flew it only once every 4 to 6 weeks. He called the tower for taxi instructions, but received no communication, thus repeated his request twice more. On his first call, he forgot the bureau number of his aircraft, caught his own mistake and corrected himself after reading number from the instrument panel . . . All these circumstances occurring at an Air Force base gave rise to a feeling of embarrassment . . . Shortly after being airborne, he had an onset of ill feeling in his stomach, associated with a dull tense sensation in the back of his neck. This dull tense feeling rapidly grew into an occipital headache, which in turn grew in intensity and finally enveloped the entire head. This progression was rather rapid and the pain became so intense that the ill feeling in his stomach was of no concern. The pain was described as being sharp steady and at times a feeling of pressure inside his head. As the ache progressed, he felt that the pressure of the helmet was aggravating pain. Pilot states he felt as though he were going blind. There was an onset of blurred vision following the intense headache. He could see the instruments, but could not identify any one instrument. He seemed to want to concentrate on an instrument, but could not remember which one. He felt as though he were dreaming. His thoughts jumped from one thing to another. His first thought at onset of difficulty was to return to Dobbins, but suppressed it by thinking trouble was temporary and would pass off soon.

Even during the phase of confused thinking, the pilot still wanted to return to Dobbins Air Force Base; however, he was unable to make any positive effort in executing a change in course. He attempted to "crank in" Dobbins, but the handle was "too far away." The pilot states that "Macon" kept coming into his mind, and when he got there he would know how to turn back to Dobbins. He relates that after his intense headache was predominate, he did not fully realize he was in trouble and felt that the aircraft was in good shape. He never thought whether his position was safe or unsafe. He did not make any decision of a positive nature, except to quit flying the aircraft. He vaguely remembers reaching for the canopy jettison lever. He was aware of rushing air, but not of the ejection nor removal from the seat . . . From the onset of the ill feeling in his stomach, he did not have the urge to vomit. However, during descent after ejection, each time he came to himself he was vomiting . . . . .

All the symptoms in the foregoing statement are those of acute carbon monoxide poisoning. However, there are other factors which must be

considered: (1) slept about 5-1/2 hours the night prior to flight; (2) no breakfast on day of flight; (3) about 7 hours since last meal consisting of steak sandwich and coffee; (4) unfamiliarity with aircraft; and (5) possible emotional factors. This pilot relates his usual hours of sleep are 5 to 6 and he awakes fully refreshed. His physical feelings on the day of flight were no different from any other day. He states that he never eats breakfast and that he never eats a heavy lunch. During impairment of thinking process, any unfamiliarity of the aircraft could play a great part . . . . .

The Naval Medical Laboratory at Bethesda, Md., reported 1.1 vol.% capacity 16.1 vol.%, and 6.84% saturation in the blood sample of this pilot. In view of the fact that this blood sample was taken three hours following the accident and that carboxyhemoglobin concentration decreases about one-half in one to three hours, the amount of saturation in this pilot could have been from 14 to 20%, or possibly slightly in excess of this.

Recommendations

1. That all pilots be impressed that they fly all aircraft in which they are qualified frequently enough to maintain familiarity with aircraft.
2. Reemphasize that all pilots must remember that the effects of breathing carbon monoxide contaminated air are insidious, and they must be ever alert to note changes in their well being.
3. That all pilots be impressed that when abnormal physical or mental symptoms occur, immediate and appropriate action must be taken .

* * * * * *

Research Reports Concerning Explosive Decompression

Following are two recent research reports which should prove of great interest to all flight surgeons:

Some Effects of Explosive Decompression on Albino Rats: Preliminary Studies: U.S. Naval School of Aviation Medicine, Pensacola, Fla., Research Report No. 1. NM 001 101 105.01, 10 August 1955, Arthur L. Hall.

Albino rats were explosively decompressed over various rates of times and ranges of pressure. Rats decompressed slowly were used as controls. Explosive decompression per se produced damage most apparent in the pulmonary system. Some instances of damage to the gastrointestinal tract, ears, or diaphragm were noted.

Some Effects of Rapid Decompression to 43,000 Feet on Human Subjects: Incidence and Severity of Aerebullosis (Aeroembolism) in a Subject Repeatedly Exposed to Terminal Altitudes Between 35,000 and 43,000 Feet: U.S.

Naval School of Aviation Medicine, Pensacola, Fla., Research Project NM 001 101 103, Report No. 1, 28 December 1955, Arthur L. Hall.

A human subject was exposed to simulated altitudes of 35,000 and 43,000 feet by rapid decompression for a total of 142 exposures. The man exhibited an increase both in severity and incidence of symptoms of aerebullosis (aeroembolism) with repeated exposure. As the number of exposures increased, the man had to be returned to increasingly lower altitudes before symptoms disappeared. Increase in number of exposures did not decrease the time at altitude for first appearance of symptoms.

* * * * * *

Aircraft Accident and Emergency Plan

One USAF hospital has adopted an aircraft emergency accident plan containing a rather unique concept which under actual crash conditions has proven itself superior in every respect to previous crash procedures. Although it is true that no emergency crash procedure can have specific application to every Air Force hospital, it is believed that this plan contains several elements which with local adaptations would prove beneficial to almost any hospital's crash plan.

By carefully studying and isolating the areas where most trouble and confusion occurred when actual crash conditions were encountered, it became apparent that, for the smoothest functioning as a team, some means should be devised for closely integrating and coordinating the efforts of every individual and utilizing their potential to the fullest.

It was found that sufficient medical personnel were available and eager to be of assistance, but there was insufficient time under emergency conditions in which to give detailed directions as to exactly what to do and how to do it.

This hospital's plan consists of converting its effort into three basic areas of operation: the emergency treatment of the patient, the initial assembling of blood donors and drawing of blood, and the administrative and monitoring activities required throughout the hospital. Teams are formed within each of these primary areas, responsibilities are established, and required supplies and equipment prepackaged. Each individual team member is given a specific task to perform and is told not only what to do, but how to do it, by means of a series of cards on which a full job description is outlined for each separate function.

The cards are maintained in a sealed, glass-enclosed case in the dispensary where the treatment teams function. When the crash alarm is sounded, certain personnel, such as those from the laboratory, x-ray, pharmacy, surgery, motor pool, et cetera, report immediately to their sections where they stand by for action required of their departments as the situation develops. The senior medical officer present for duty, who assumes

charge of all operations, removes the card from the case. The top envelope contains his own instructions. From the assembled officers and corpsmen, he selects a team captain and two assistants for each of the treatment teams which are to be established.

The team captain is issued an envelope containing cards which outline detailed instructions as to what each member of the team is to do, how he is to do it, and where his supplies and equipment are located. The instructions for each treatment team are identical. Formation of, and issuance of, instructions to the blood drawing team and the monitoring teams by the officer in charge are handled in the same manner as outlined above.

One of the most outstanding features of this plan is the fact that no matter what hospital personnel may be available at the time of emergency, they can proceed at once to organize for action. Any person, even though he is newly assigned, is aware of where he goes, what he does, and how to do it. There is a continuous training program not only in operation of the plan itself, but also in all the procedures necessary to the emergency care of the seriously injured. This hospital, on two actual crash occasions, was able to mobilize its personnel, establish the teams, and get supplies and equipment set up and ready to receive the first patient all within a matter of minutes.

Another facet relating to this plan is the blood donor program in emergencies. Each new arrival at the base who is classified "O" Rh Negative is forwarded a letter advising him to report at once to the hospital when a crash occurs. His name is added to a separate file of "O" Rh Negative donors. If the situation is sufficiently severe to warrant drastic action, this type blood can be used immediately without cross-matching. Thus, there is a ready pool of donors available in an emergency.

Magnificent response has been obtained by this method. This particular base had an available reservoir of blood within 10 to 12 minutes. Another facet of the blood donor procedure which was found most beneficial was the use of the dental clinic located in the hospital as the center of the blood-letting operation. Not only does this contribute to efficiency of operation by physically removing this activity from the busy area of the treatment teams, but it was also found that the dental chairs, when placed in a reclining position, were excellent for the patient during the process of drawing blood. (United States Air Force Medical Service Digest, Vol. VII, No. V, May 1956)

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Aero Medical Association Annual Meeting - May 1957
Regulations for Presentation of Papers

The Annual Meeting of the Aero Medical Association will be held in Denver, Colorado, May 6-8, 1957. Headquarters will be at the Shirley-Savoy Hotel.

Deadline for Receipt of Title of Papers and Abstracts: December 1, 1956 This is the latest date for acceptance by the Chairman of the Program

Committee of titles and abstracts from either members or non-members wishing to present papers at the scientific sessions. Please note carefully the following rules for preparation of abstracts and for ordering reprints if desired:

1. Abstracts must not exceed 150 words or equivalent space, including title, name(s) of author(s), and institutional affiliation. The text should consist of a single paragraph. Structural chemical formulae, figures, or footnotes cannot be used. Tabular data are discouraged, but if used must permit setting in a single column and each line of a table and its heading must be counted as ten text words.

2. Form of Abstract. The heading of the abstract must be arranged to include the following items in order: (a) Title (avoid unnecessary words). (Please indicate if abstract is to be "Read by Title"). (b) Name of author(s) and highest earned degree; indicate rank if in military service. (c) Laboratory or office of origin (as brief as possible). (d) Address of laboratory. The body of the abstract, typed double space, should follow on the same sheet.

3. Abstracts must be submitted in triplicate to the Chairman or a member of the Scientific Program Committee not later than December 1, 1956. Abstracts should be letter perfect since there will be no opportunity for proofreading by authors. If reprints are desired, they may be obtained by requesting a reprint order form from the Bruce Publishing Company, St. Paul, Minn.

Program Rules. Please observe carefully the following rules for the presentation of papers at the Denver meeting of the Aero Medical Association:

1. Each speaker will be allowed a maximum of 15 minutes for the presentation of his material and for discussion. For example, if the presentation is limited to 12 minutes, 3 minutes will be available for discussion.

2. No individual may present more than one paper. In the case of abstracts submitted by more than one person, the first named author will be asked to present the paper.

Your Program Committee is most desirous of full cooperation and participation in the forthcoming Annual Meeting of the Aero Medical Association. Owing to the favorable acceptance of the scientific program at the Chicago meeting, a similar type of program is being planned with simultaneous sessions for presentation of scientific papers. It is also hoped that a number of 16 mm. motion picture films may be available for projection and discussion during the meeting.

Will you kindly submit as soon as possible the title and abstract of the paper you wish to present at Denver.

/s/ E. J. Baldes, Ph. D
Chairman, Scientific Program Committee
Mayo Clinic, Rochester, Minnesota

Installation and Evaluation of a Trainer for Aviation Underwater Survival

The Problem

In 1952, it was found that standard naval aviation oxygen equipment operated satisfactorily under water. The Chief of Naval Air Training desired that this equipment be installed and evaluated for a possible training program in aviation underwater survival.

Findings

Standard naval aviation oxygen equipment was installed in a Dilbert Dunker and as a portable installation for training purposes. In addition, diving equipment was made for a "Safety Diver." All apparatus operated successfully. Installation and evaluation is detailed in this report. Equipment and personnel required for operation of the apparatus, as well as a sample lecture, are included in the report.

A suggested lecture follows, to be given by flight surgeons and aviation physiologists:

> The Naval School of Aviation Medicine at Pensacola, in 1952, determined that the oxygen equipment carried in Naval Aircraft for use at high altitude would operate satisfactorily underwater. Hall (the investigator for SchAvMed) found that the only requirements for successful operation under water were that the oxygen mask had to be properly fitted and the regulator turned to 100% oxygen (diluter off). Bail-out oxygen equipment did not operate satisfactorily. As you know, the function of the diluter is to mix air with the oxygen in normal use. If the diluter were allowed to remain open under water, the water would mix with the oxygen—an unfortunate situation.
>
> Since a person would be breathing 100% oxygen under water, you might wonder about the danger of oxygen poisoning. Wiggers states that exposure to 100% oxygen can be well tolerated for one-half hour at 100 feet depth. The Navy diving laboratory at the Naval Gun Factory, Washington, D. C., recommends 40 feet as the safe depth, for one-half hour if the man is exercising. Since the effects of oxygen poisoning will often be reversed on ascent at the surface and since the use of oxygen equipment under water is an emergency procedure only, the certainty of drowning compared to the possibility of oxygen poisoning leaves little choice.

The School of Aviation Medicine in its original report did not recommend that the pilot or aircrewman ride the airplane to the bottom following "ditching" just because the aviation oxygen equipment would operate under water. The report advocated normal escape from the aircraft after "ditching" if possible, but if normal escape were impossible because of mechanical difficulty (jammed canopy, et cetera), physical injury, or brief loss of consciousness on impact, then the use of aviation oxygen equipment under water might save the pilot's life. It would allow him to use coordinated effort to eliminate the mechanical difficulty without the danger of imminent drowning; it would allow him better to overcome physical difficulties; and, finally, if he lost consciousness on impact, he would have a better chance of regaining consciousness instead of helplessly drowning.

The pilot must abandon the submerged plane before his half-hour oxygen supply is exhausted. To do so, he must disconnect himself from this supply. The question arises, if he has ridden the plane to the bottom, or to any great depth, will he drown before he reaches the surface of the water? Routine escapes are made from 100-foot depths without outside breathing supplies. In fact, this is a point one must remember! When coming to the surface, the gas that is in the lungs will expand as the water pressure decreases. The lungs cannot resist the expansion of the gas from any great depth; the gas must be vented into the water all the way to the surface. A man must breathe out as he rises, or the pressure will become so great that the membranes of the lungs will rupture, causing the "air embolism" of the diver (not to be confused with the aeroembolism of the flyer). The man will be able to determine how much he should vent on ascent since the lungs will become unpleasantly full before damage results. He should not think "I have only the air in my lungs and I must save it at all costs." He must vent it as he ascends.

Getting back to the duration of the aviation oxygen equipment under water, it was stated that approximately one-half hour was available to the pilot under water. This time limit presupposes a full 514 cubic inch high-pressure oxygen cylinder and a well fitted mask. Unfortunately, the one-half hour cannot be extended greatly by holding the breath. The stimulus for breathing is the accumulation of CO_2 (carbon dioxide) and not the lack of oxygen. In fact, there is too much oxygen, if anything. As CO_2 accumulates, it exerts a most powerful stimulus for breathing. (Special Report 56-4, 23 February 1956, LCDR Arthur L. Hall, MSC USN)

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Suspected Hypoxia in High Altitude Flight

The following report was made in a recent Air Force physiological training news letter:

During an 18-month period, 1 July 1954 through 31 December 1955, Flying Training Air Force alone reported 55 instances of moderate to severe hypoxia in occupants of T-33 aircraft. In a number of these cases, the presence of a second occupant prevented an aircraft accident. During the same period, the USAF experienced 59 cause-undetermined fatal aircraft accidents wherein altitude of the aircraft immediately prior to the accident and other factors indicated hypoxia as the most probable factor. Observations and experiments indicate that as high as 10% of all individuals will experience moderate to severe hypoxia in a flight of one hour or more at a cabin altitude of 25,000 feet or more. This occurs even though occupants are wearing masks and are familiar with oxygen equipment, and is a result of multiple factors such as poorly fitting masks, sticking valves in masks, undetected leaks in the system, accidental disconnection of oxygen hose, faulty regulators, or other undetected conditions. Strict oxygen discipline will lower the number of such hypoxia cases. However, the most effective deterrent to hypoxia is the full use of cabin pressurization within the design capabilities of the aircraft concerned. In this respect there have been several recent unexplained accidents wherein the pilots took off in aircraft where the pressurization systems were known to be inoperative. These pilots subsequently dove in from very high altitudes with no attempt for recovery, and hypoxia was the most probable factor. It is recommended that the above information be disseminated to your operational units.

An example of symptoms and difficulties reported by T-33 pilots and passengers is presented in the following summary of one such incident. Both occupants used 100% oxygen from engine start to altitude. About 40 minutes after take-off, flying at an altitude of 38,000 feet, cabin altitude 26,000 feet, the pilot developed pain in the left elbow and shoulder and right knee; he developed a dry cough with pain over the anterior chest. The passenger became nauseated. On descent and landing, both men recovered. It was found that a new mask and helmet issued to the pilot prior to flight had been haphazardly fitted. The mask was found to leak, and the helmet fitting was extremely poor. The passenger's mask was found to contain rubber that had dry-rotted, and his mask had a pressure leak. Neither of the men realized the danger of their situation.

Our Navy physiological training units have been helping to prevent such occurrences by careful inspections of oxygen equipment and by accurate fitting of oxygen masks and helmets. In the year ending 30 June 1956, 11,585 persons were taken on low pressure chamber flights to a simulated altitude of 43,000 feet and 10,271 to the 30,000 foot-level. This represents a 50% increase in oxygen physiology lectures and a 26% increase in low pressure chamber flights over a similar period of 1955. Such a training program can materially lower the occurrence of aircraft incidents, accidents, and fatalities.

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Submarine Medicine Class

Applications are being received for the next class in submarine medicine which convenes at the Submarine Base, New London, Conn., the first week in January 1957. Applications should be addressed to the Chief, Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C. (Attention: Professional Division).

Applicants must be physically qualified in accordance with Articles 15-29 and 15-30, Manual of the Medical Department. The submission of a completed Standard Form 88 (Report of Physical Examination) as an enclosure to the official request will expedite consideration by the Advisory Board. The following statement is required in the application: "I agree to remain on active duty for six months following the period of service for which I am currently obligated, or for one year following completion of the course, whichever is longer."

(SubMedDiv, BuMed)

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